EXHIBIT 7

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November 21, 2012

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P.O. Box 16099
Chapel Hill, NC 27516

Re:	Insured:	Christopher Taylor
	Claim No:	33-D493-449
	Date of Loss:	August 29, 2011
	Our File No:	121093

AMENDED AND SUPPLEMENTAL REPORT

Dear Ms. MacLeod:

Introduction

Pursuant to your request, McDowell Owens Engineering, Inc. has conducted an electrical investigation and analysis of a fire loss at 190 Cedar Valley Lane in Louisburg, North Carolina that occurred on August 29, 2011. A preliminary report based upon information available at that time was released in August of 2012. Since that time, new information has become available. The following is an amended form of that preliminary report along with a supplement. This amended and supplemental report is released in order to properly reflect the new information. Conclusions and opinions expressed in this report may be further supplemented or amended should additional information become available.

Material Reviewed for Preparation of Report

1. Incident description provided in phone conversation with Skye MacLeod, Esq.
2. Excerpts of a newspaper article in the Franklin Times
3. Expert report and scene photographs taken by Mr. Rob McGraw
4. Examination of branch circuit conductors collected by Mr. Rob McGraw
5. NFPA 921 - 2011 version
6. NFPA 780
7. NFPA 70
8. *Amended and supplemental report of Mr. Rob McGraw dated November 6, 2012*
9. *Results of a joint destructive evidence examination on September 12, 2012*
10. *Expert report by Mr. Dennis Scardino (not dated)*
11. *Expert report by Mr. Mark Goodson (not dated)*
12. *Expert report by Mr. Thomas Eager dated November 19, 2012*

Note: Items 8 – 12 are new sources of information since the release of the preliminary report.

Background of the Fire Incident

During the last week of August 2011, storms spawned by Hurricane Irene moved through the area around Louisburg, North Carolina. According to reports in the Franklin Times, lightning was involved in the cause of at least two structure fires in Franklin County during that period. The fire scene at 190 Cedar Valley Lane was investigated by Mr. Robert McGraw of Element Analytical. Clear evidence of a lightning strike to the structure was recorded in photographs. Analysis of the fire scene by McDowell Owens Engineering, Inc. is based primarily on information, photographs, and evidence provided by Mr. McGraw.

Electrical System Examination

Underground electrical service is provided to the residence via a 200-Amp Cutler-Hammer main breaker panel located on the east exterior wall of the house. Power is distributed from the main panel to two sub-panels inside the house. At the service entrance location, proper system grounding mechanisms were observed to be in place. Photos revealed no evidence of failure or problems with any of the electrical service equipment. Material used in the wiring of the house was standard and installation workmanship of the electrical wiring appeared to be superior. In summary, no issues were observed in or on the electrical system that were in any way related to the cause of the fire.

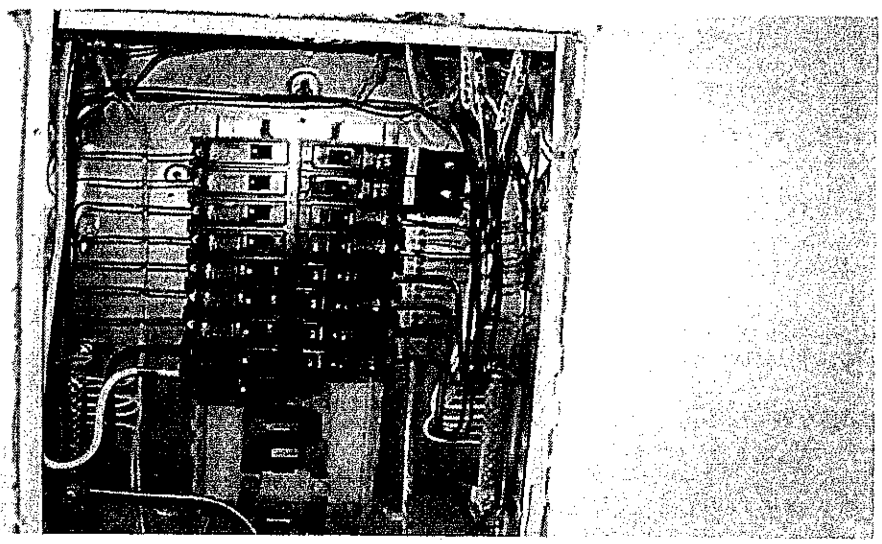

PHOTO 1 - Element Analytical Photo 416
Electrical System Workmanship is of Professional Quality
No Evidence Found of any Condition Causally Related to the Fire

Overview of the Fire Damage

On the exterior of the house, fire damage was observed on the center section of the *north*-facing roof surface and on a small portion *south* of the roof ridgeline. As this was an attic fire, the area that sustained actual burn damage (consumption of material) was primarily under the roof deck and on the rafter assemblies. The main burned area was near the east-to-west center of the roof deck and just *north* of the roof ridgeline (see PHOTO 3). The size of the heavily burned area appeared to be less than 8 feet by 12 feet.

PHOTO 2 - Element Analytical Photo 001
South Side of the House at 190 Cedar Valley Lane
(Shows only a Small Portion of the Tarp on the South Side of the Roof Ridgeline)

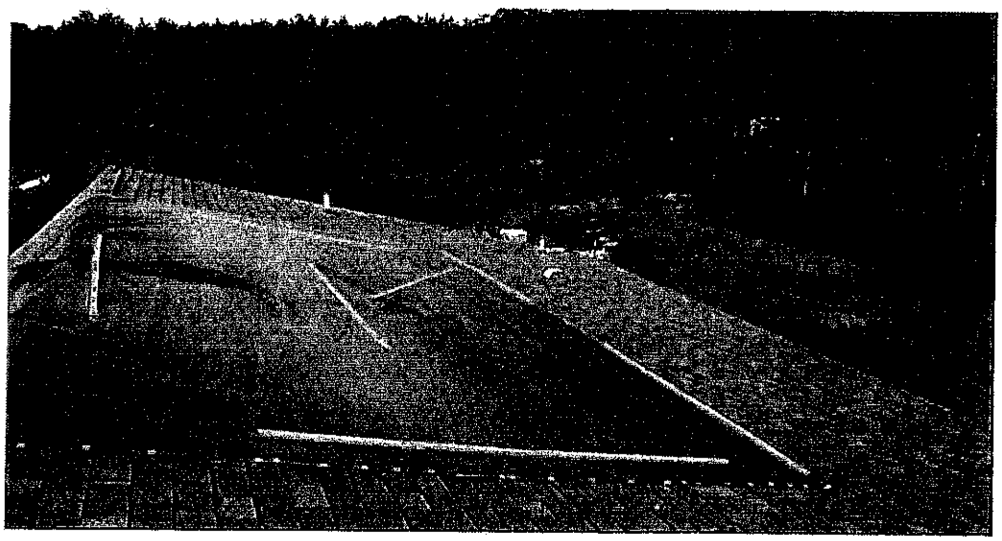

PHOTO 3 - Element Analytical Photo 221
Shows Tarp over the Main Burned Damage on the North-Facing Roof

Burn Damage Area Examination and Analysis

Fire damage in the residence at 190 Cedar Valley Lane was primarily confined to the attic space. The area that sustained actual burn damage (consumption of material) was on and under the roof deck and on the rafter assemblies. The main burned area was near the east-to-west center of the roof and just *north* of the roof ridgeline. The size of the heavily burned area appeared to be less than 8 feet by 12 feet.

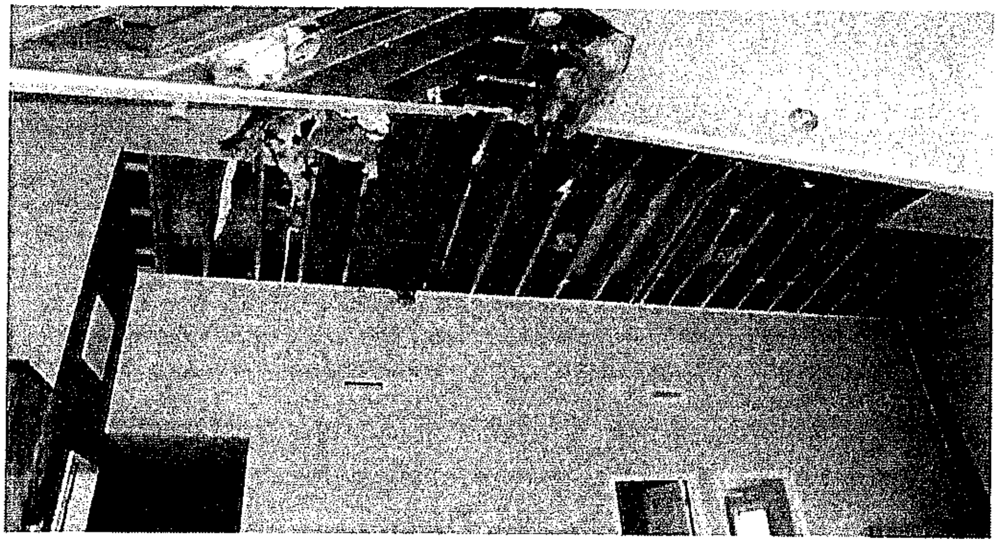

PHOTO 4 - Element Analytical Photo 171
Most Attic Burn Damage Localized at Upper-Center of North Roof Deck
(Note Temporary Sheathing where Burned Radiant Barrier Sheathing was Removed)

Burn damage patterns on vertically oriented surfaces can be useful in identifying exact area of origin as flame tends to spread upward and outward (see NFPA 921, Chapter 6). Photos show the lowest burn damage is approximately 8 to 10 feet north of the roof ridgeline. The burn pattern spreads up and out from there and continues all the way up to the ridgeline of the roof. Information provided by Mr. McGraw supports a finding that the fire point of origin was in this lower portion of the burn area.

During a joint examination of the burn damaged area, conductors from two branch circuits were recovered and retained as evidence. One of the circuits recovered consisted of a section of 14-3 non-metal shield cable (commonly called Romex) and a section of 14-2 Romex. These were identified as Element Analytical Evidence Items #5 and #6 and were reported to have been the only conductors in or near the origin area that were considered as possible causes on the fire. McDowell Owens was able to examine these cables on two occasions. The first occasion was at the McDowell Owens facility in Kingwood, Texas. The second occasion was during a joint and destructive examination at the Goodson Engineering facility in Denton, Texas. During these examinations, McDowell Owens determined that neither of these cables had been causally involved in the ignition of this fire for the following reasons. The 14-2 cable contained no evidence of localized over-heating or electrical activity; therefore, this cable could not have been the cause of the fire. The 14-3 cable did show signs of electrical activity, but in an unusual pattern. The ground wire (and only the ground wire) had evidence of electrical arcing in two locations. The physical appearance of the arcing evidence was consistent with that observed as a result of "arcing through charred insulation"; however, there were no corresponding arc marks on any of the other three wires in the cable. This means that the arc marks on the ground wire could not have been a result of some pre-fire failure of this cable that resulted in arcing between wires of the cable. Since the only other electrical conductor and possible source of current was the aluminum on the radiant barrier material, it must be considered highly likely that the current causing the arcs on the ground wire came from that

aluminum sheet. The fact that there are two separate arc marks further supports this explanation. The current that was available on the aluminum sheet during the lightning strike would fully explain all conditions observed on these wires. Finally, the fact that the arc marks observed on the ground wire (regardless of the source of the current) were found outside of the origin area tells us that the arcing event was not the cause of the fire (see Photo 2 from Rob McGraw's supplemental report).

PHOTO 5
Shows Arcing on the Ground Wire of the 14-3 NM Electrical Cable

Examination and Analysis of Lightning Evidence and Damage
Photographs of the fireplace chimney cap clearly show evidence of a lightning strike. Careful examination of photos revealed that the current entered the cap over a span of several inches and created numerous small points of metal melting.

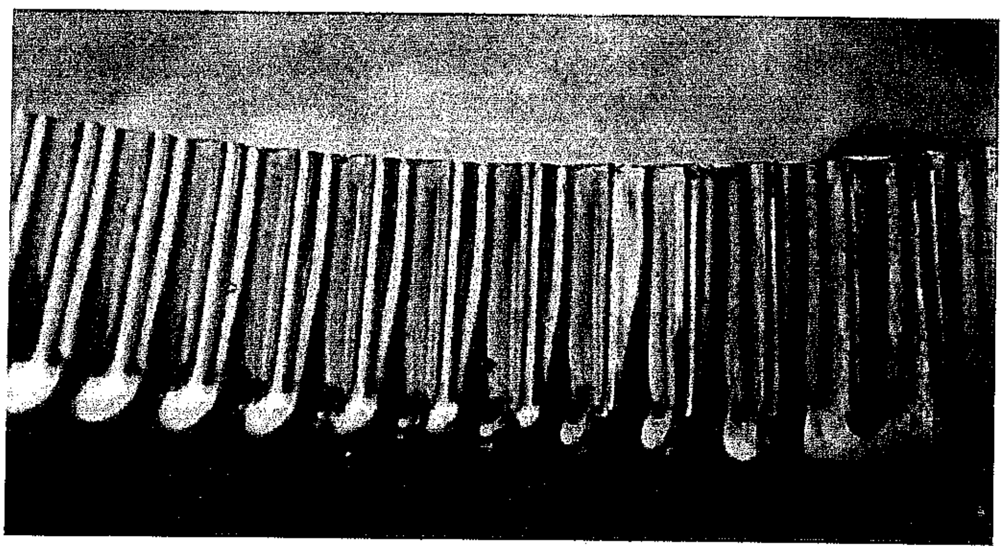

PHOTO 6 - Element Analytical Photo 372
Shows the Lighting Strike Points on the Chimney Cap

Photos of the radiant barrier foil directly below the chimney pipe flashing show evidence of a large amount of high-voltage electrical current flowing from the chimney flashing through roofing nails to the radiant barrier foil directly below. This evidence establishes that the radiant barrier foil was in fact energized by the lightning from the strike on the chimney cap.

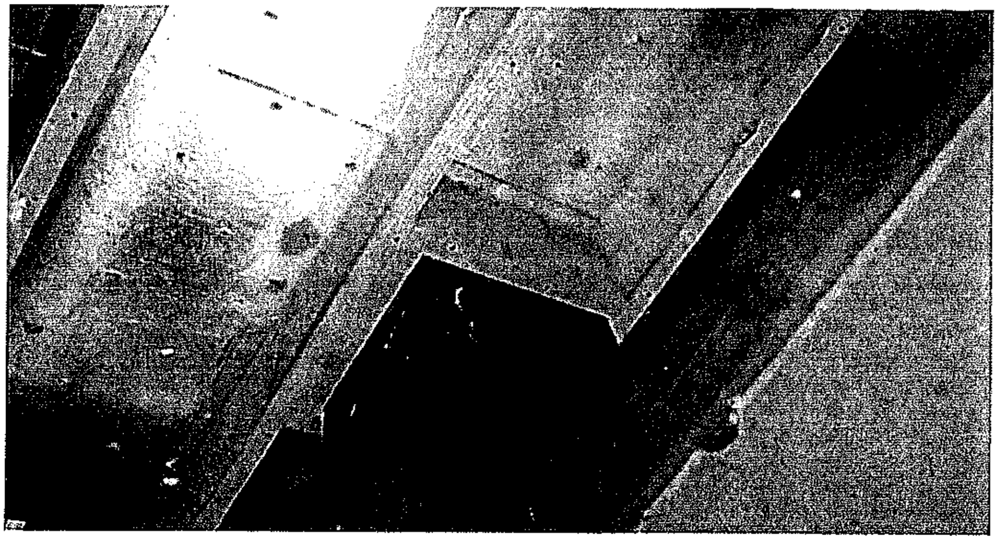

PHOTO 7 - Element Analytical Photo 325
High Current Electrical Burning Around Nails Penetrating Through Chimney Flashing

Photos (such as PHOTO 8 below) show conclusive evidence of high current conduction between the radiant barrier foil and metal dryer vent pipe. Other photos show that lightning current continued through the dryer vent pipe into the dryer itself and ultimately out through the house wiring system to ground.

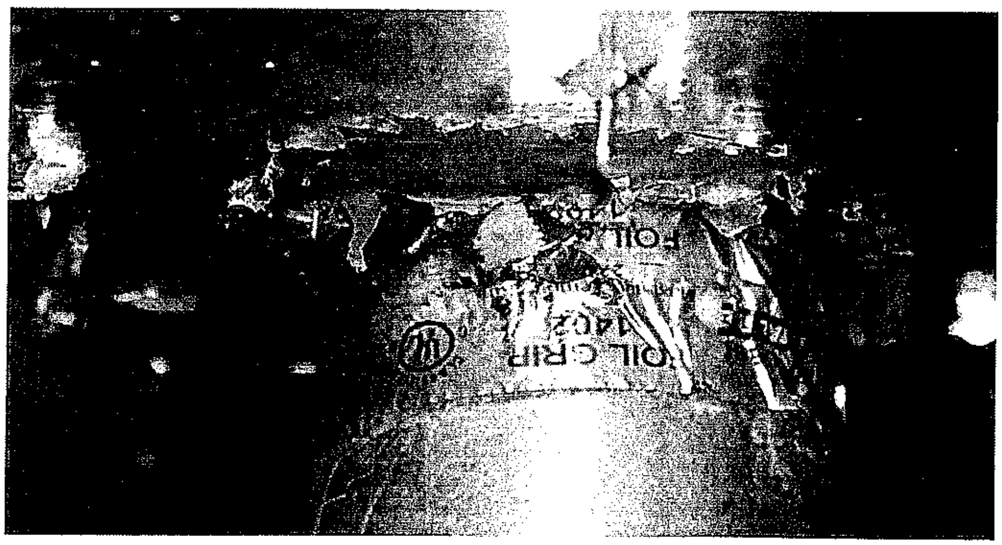

PHOTO 8 - Element Analytical Photo 361
Clear Evidence of Large Amounts of Lightning Current from the Radiant Barrier Foil into the Dryer Vent Pipe

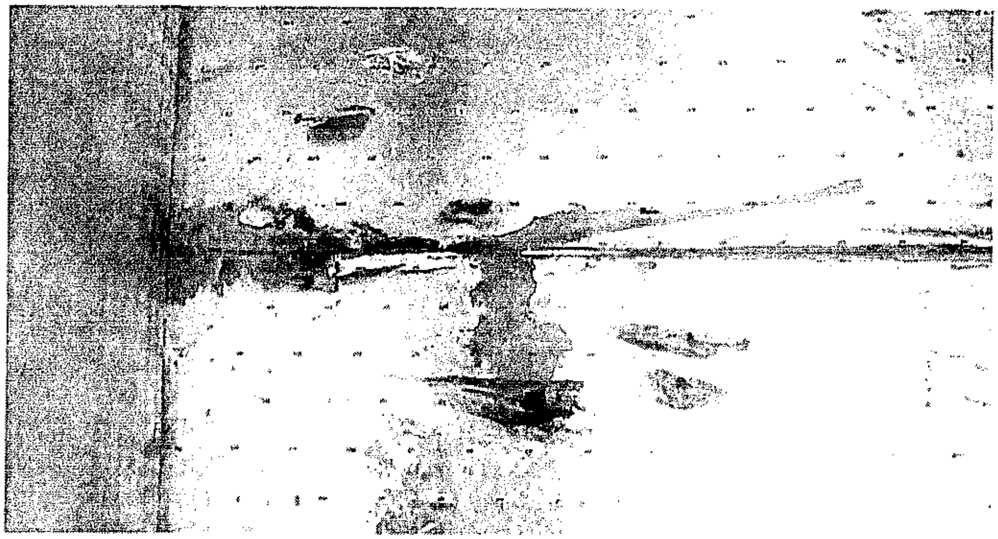

PHOTO 9 - Element Analytical Photo 316
Clear Evidence of Electrical Arcing and Burning at Locations Between Roof Deck Sheathing Sheets Adjacent to the Fire Origin Area

Photos (such as PHOTO 9) show conclusive evidence of arcing at the joints between radiant barrier sheets along the path between the fireplace chimney and the dryer vent. Only one photo is shown above; however, the same pattern existed in many different locations along the current path. The localized blackening and soot deposits show that flames existed at this location.

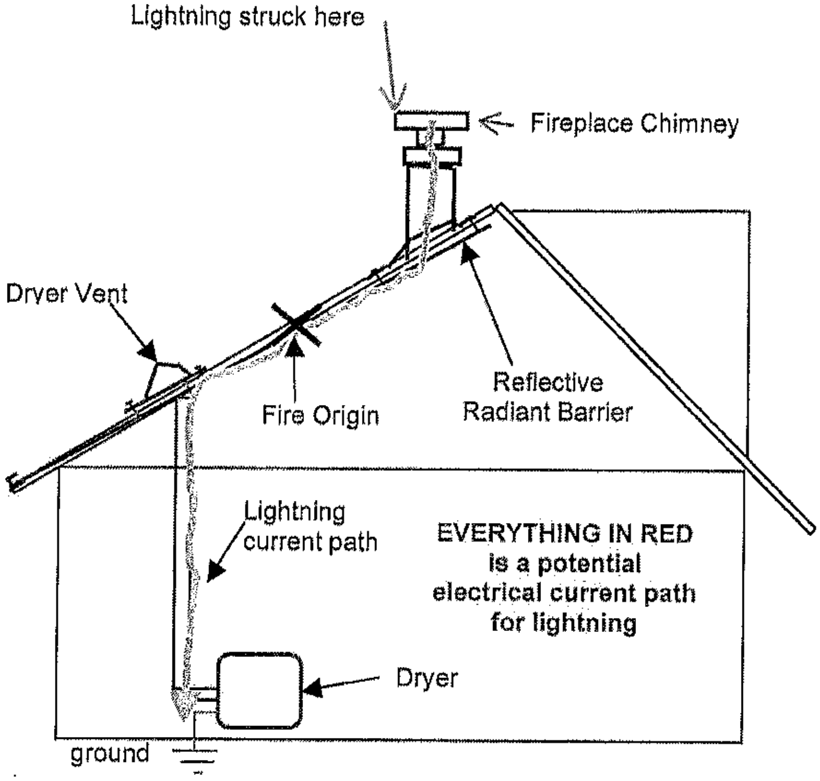

DIAGRAM 1 - Side View of the House
Lightning Current Path on Radiant Barrier to Ground

DIAGRAM 1 illustrates the roof's electrical environment present in the structure with the roof sheathing having radiant barrier glued to the underside. **Both the fireplace chimney and the dryer vent were electrically connected to the radiant barrier through nails.**

As the lightning current travelled from the strike point on the fireplace chimney to the ground connection through the dryer, it passed directly through the fire origin area. The path of the lightning is recorded by the arcing and burning at the joints between roof sheathing sheets along the path (see PHOTO 9 above). In the bottom paragraph on Page 3 of 10 of his report, Mr. Scardino acknowledges that on the attic side (bottom) of the RBS material, there were areas that exhibited "localized heat effects". The clearly visible "localized black soot" deposits seen in photos leave no doubt that combustion occurred in some of those locations and that the "heat effects" included combustion (burning). These patches of arcing and burning were observed in many locations along a general path between the chimney where the lightning strike occurred and the dryer vent pipe where the lightning current found a robust path to ground.

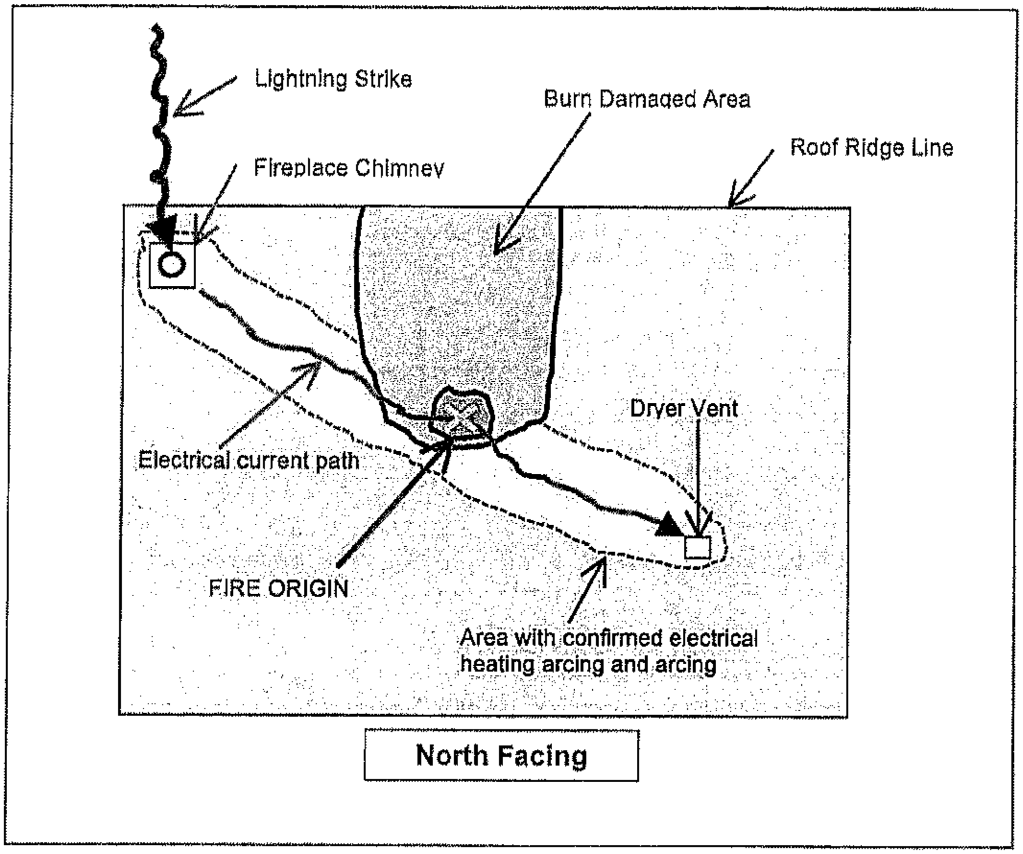

DIAGRAM 2 - Top View of North Roof
Lightning Current Path on Radiant Barrier Directly Through Fire Origin Area

Testing Performed

Many different tests of the physical, electrical, and thermal characteristics of reflective radiant barrier material (including Louisiana Pacific TechShield) have been performed in the McDowell Owens lab. Portions of this testing are documented on the McDowell Owens website and have been posted on the National Association of Fire Investigators website (a CD with photos and video of a small portion of this testing is included with this report). This testing has confirmed the sheet resistance of the radiant barrier sheathing material is such that when the current density in the material exceeds approximately 300 amps per square millimeter, resistive heating within the material generates temperatures higher than the ignition temperature of common materials such as paper, glue, and light plastics. As a result, when the current density exceeds this level, the paper and glue layers and other light combustibles in contact can easily ignite in flame. The testing has also demonstrated that when high voltage arcing occurs between roofing sheets with radiant barrier material, high current density levels are not required for ignition to occur because of the high temperatures generated by the arcing. If other light combustible materials (such as plastic vent channels) are nearby, the fire can quickly progress to a full attic fire.

Testing (such as that discussed above) demonstrates that radiant barrier product easily ignites when exposed to many different sources of electrical current. This testing also serves as proof that the

product will ignite when exposed to electrical sources of higher power levels. At a fundamental level, electricity from any source is the same as electricity from any other source once it is flowing through a conductor – just as heat flowing through a metal object is the same regardless of the source. There is very little difference in the fundamental heating effects of current from almost all different sources. The fundamental rules of electrical physics such as Ohm's Law and Kirchoff's Law apply the same to current from lightning as to current from any other source. Proof that a material can easily be ignited by a match is also poof that it can be ignited by a blow-torch. Higher levels of heat (or higher levels of current) simply cause the heating to occur more rapidly.

Summary of the Event

A lightning strike energized the fireplace chimney on the residence at 190 Cedar Valley Lane. Current from that strike travelled down through the chimney pipe, through metal flashing, through roofing nails, and onto the reflective radiant barrier material adhered to the underside of the roof sheathing. The current continued through the radiant barrier foil to the dryer vent pipe that penetrated the roof in the northwest quadrant. The current continued down the dryer vent pipe and eventually along a path to earth ground through the dryer electrical connections. The current moved along the path from one sheet of roofing material to the next by "arcing" or "jumping" across gaps where the foil was not in direct physical contact.

As the current moved along the path, the current density exceeded 300 amps per square millimeter at numerous locations. At some of the numerous high current locations, the radiant barrier material erupted in flame. At many of these locations, plastic vent channel material was in direct contact with the radiant barrier material. At the point of origin of the attic fire, the burning radiant barrier material ignited the vent channel and/or other light combustible material, which subsequently ignited the wood structures of the roof.

Of course, the easily consumed radiant barrier material that had been in the middle of the origin area and that initially burned and ignited other materials was no longer available after the fire since, by definition, "it burned". However, photos (such as PHOTO 9 above) clearly show that portions of the material immediately adjacent to the origin area had experienced burning with flame as a result of being electrically energized. We can be completely certain that the radiant barrier material in the origin area was also electrically energized. Therefore, we are certain that material in the origin area would have experienced burning with flame just as the locations immediately adjacent did. Finally, since no other possible source of ignition heat was identified in the origin area, we can be certain that the burning radiant barrier material provided the heat of ignition.

The Role of Lightning in the Taylor Fire

Lightning does cause structure fires and has done so throughout history. However, knowledge from recent field experience indicates that there have been more lighting involved structure fires in recent years because of new products being used in home construction. There are relatively new products that have been shown to present unique and unusually high levels of danger of fire when exposed to lightning. Corrugated Stainless Steel Tubing used for gas plumbing in building attics is such a product. The electrical and physical properties of the CSST are such that when energized by lightning, it can easily rupture and release flammable gas. In many CSST involved fires, it has been

determined that even though lightning was involved and provided the "energy" for ignition, the behavior of the CSST was the actual cause of the fire. The point is this: even though lightning is involved as a source of energy, it does not mean that the lightning (and only the lightning) is the cause of the fire.

When an electrical appliance has failed and caused a fire, the electricity from the utility company provided the ENERGY that ignited the fire, but we do not consider that the electricity or the utility company caused the fire. The electrical energy for ignition of the fire at the Taylor residence was supplied by lightning; however, that does not mean that lightning was the cause of the fire. The lightning energized the fireplace chimney, but the chimney did not cause the fire. The lightning energized roofing nails, but the nails did not cause the fire. The lightning energized the dryer vent and dryer, but neither the dryer vent nor the dryer caused the fire. The lightning energized the electrical ground system of the house, but the electrical ground system did not cause the fire. The only place along the path of the lightning that evidence of fire ignition was observed was on the radiant barrier material and the evidence was observed in SEVERAL places on that material. Clearly, it was the behavior of the radiant barrier material (when energized by electricity) that caused the fire. The lightning only provided the energy just as utility company electricity provides the energy in most electrical fires.

Metal components (including aluminum) as a part of building materials are common and it is not uncommon for these items to become energized when lightning strikes a building. However, most metal components are not as "thin" and as easily ignited as the aluminum on radiant barrier sheathing and no other metal components are installed to completely cover the underside of the roof deck where lightning is very likely to strike.

The Role of Radiant Barrier Material in the Fire

A review of the roles of the radiant barrier material in this case is as follows. First, because the material is highly conductive, the material conducted the electrical energy to the point of fire origin. Second, as a result of the "resistive" property, the material generated the heat of ignition through resistive heating at numerous locations. Third, because glue, paper, and very thin aluminum are easily ignited, the radiant barrier served as the first ignited material (once adequately heated). Photos from the Taylor house show locations of burning all along the path of the lightning current. Finally, the burning radiant barrier material in the origin area ignited other nearby light combustible materials. When all of these behaviors of the material are considered together (along with the fact that no other possible source of ignition was found in the origin area), it is clear that the radiant barrier material caused this fire. Without the presence and behavior of the radiant barrier material, this fire would not have occurred. Reports and articles previously published by McDowell Owens as well as photos and videos in a PowerPoint file attached to this report clearly show how easily this material is ignited by electrical current.

Conclusion

Based on our experience, training, and examination of available evidence, it is the opinion of McDowell Owens Engineering, Inc. that this fire was the direct result of electrical over-heating and ignition of the reflective radiant barrier material on the underside of the roof sheathing. Photos from

the fire scene clearly show burning on the radiant barrier material on both sides of the origin area that was on the path of lightning current between the strike point and the connection to ground. No other viable source of ignition heat was found in the origin area. Therefore, the only possible source of ignition heat was the burning radiant barrier material. We conclude (to a reasonable degree of engineering certainty) this fire was caused by the hazardous properties and hazardous behavior of the reflective radiant barrier material when it was energized by the electrical current from the lightning and subsequently, became the first ignited material.

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